Access to Microfinance & Improved Implementation of Policy Reform (AMIR Program)

Funded By U.S. Agency for International Development

Assessment of Opportunities to Streamline and Improve Electronic Government Services to Business and Trade

Final Report

Deliverable for BAI Component, Task No. 2.9.1
Contract No. 278-C-00-98-00029-00

August 2000

This report was prepared by Mr. Casey Wolfe, in collaboration with Chemonics International Inc., prime contractor to the U.S. Agency for International Development for the AMIR Program in Jordan.

Assessment of Opportunities to Streamline and Improve Electronic Government Services to Business and Trade

Executive Summary

The Investor Roadmap study, as part of the AMIR Policy Reform Initiative, recommended a number of administrative and organizational reforms to streamline processes and reduce the paperwork necessary for registration and licensing of companies, access to investment incentives, and compliance with other business-related government regulations and requirements. To address the database and data processing dimension of this issue, AMIR engaged a consultant to provide an initial overview of the possibilities for streamlining processes by merging, refining, or improving utilization of government services databases. A particular focus of the consultancy was to assess options for integrating the Companies Registrar database at the Ministry of Industry and Trade with other relevant databases to reduce redundancy in data collection or improve the completeness of the data.

This consultancy examined nine relevant databases in government agencies, ministries, or business associations that are directly involved with the AMIR project. The focus was to identify common purposes, functions, content, users, database engines, and operating systems, and to explore specific opportunities to economize on those common areas. Interviews were conducted with both technical and programmatic administrators of these databases, and available documentation reviewed. Interviews were also conducted with AMIR staff involved with each organization. In some cases the subject databases were interfaced to the Internet via the agency or ministry's web site. In these cases, a broader view of the database was taken based on the elegance of the interface, ease of use, and usability of output.

The principal finding of this effort is that an opportunity exists to turn the Ministry of Industry and Trade web site into an e-government portal focused on facilitating the registration of companies and intellectual property. This report explains that such a portal can operationalize much of the information spelled out in the Investor Roadmap studies, reduce some redundancy within MIT databases, and facilitate access to related information and services at other government agencies, ministries, or business associations. The process of putting such a portal in place can also help establish a set of technical standards for on-line e-government services in Jordan.

The following report also identifies several other specific opportunities to leverage the quality, efficiency, and availability of electronic services from the public sector. These include:

- Holding a workshop to focus inter-agency / inter-Ministerial discussion on the online provision of government services and associated opportunities to recognize efficiencies in data collection, paperwork, and process.
- Producing a more thorough survey of government databases related to investment and business, to help identify other opportunities for streamlining e-government services and to underpin the development of technical standards for bringing government services online.
- Migrating the Amman Chamber of Commerce membership database to an open database platform to facilitate data sharing with MIT , Amman Chamber of Industry, and other organizations.

1. General Findings

From the content perspective, there is significant commonality among some of the reviewed databases. The Companies Registrar (MIT), IPR Unit (MIT), Amman Chamber of Commerce, and the Jordan Investment Board all maintain or are developing separate lists of registered companies, and JIB and MIT both maintain or are developing registers of industrial companies. The economic statistics database at MIT probably further mirrors some of the industry-level information that JIB plans to make available through its Industrial Companies Register database. Although these groups focus on different subsets of registered companies, in some cases it would be logical for organizations like ACC to update their information based on simple queries of the Companies Registrar's database (especially in that membership in ACC is mandatory for all registered companies of certain types).

Almost all of the databases reviewed function as client-server applications, driven by enterprise-class database engines running on either Windows NT or UNIX servers. The most common database engine is Oracle, with versions ranging from Oracle Forms 3 to Oracle 8. There is a preference for UNIX as an operating system for data servers, despite the fact that most of these organizations are running separate NT networks and the increasing reliability of NT (especially when clustered) as a database and web server OS. While harmonizing database engines and operating systems would ease future data sharing efforts, most of the products used are open development environments or support open standards, so there are no strong technical barriers to data sharing at present (except in the case of ACC, which is discussed in more detail later). As has been indicated in other AMIR a reports, the size and skill level of the IT staffs and DBAs working with these databases varies substantially.

The barriers to integrating databases or reducing redundancy in data collection are more institutional than technical. Organizations tend to be averse to scrutiny of their databases and may mistrust the accuracy or completeness of data collected by other institutions. This phenomenon is best addressed by (1) focusing initially on efforts to streamline data collection / data processing within institutions, and (2) conducting a structured inter-agency / inter-Ministerial workshop to discuss the issues associated with simplifying and integrating electronic government services. Such a workshop would be well supported by a set of brief case studies on best practices in e-government and successful e-government pilots in other countries.

2. Specific Recommendations

2.1 MIT "Electronic Business and Trade Roadmap" Web Portal

Investors, entrepreneurs, and the GOJ would benefit from the development of a web portal[1] which simplified and expanded access by investors and businesses to a range of relevant government services and information. This portal could be built in phases, focusing first on databases and processes within the Ministry which could be integrated and/or brought on line, including:

a) Access to the range of government services for a new business
   - Registration – involves constructing a front-end interface to the companies register database and process

[1] The term "web portal" is used loosely, but tends to refer to a site which provides managed access to a wide variety of resources and/or other web sites.

- Incentives – managed access to JIB Investor Information Database and information on tax and other incentives
- Investor Roadmap – decision-tree style web application to guide business startups through establishing a company, permitting, and other processes

b) Access to the range of government services for protecting intellectual property
   - Searchable access to patent, trademark, and copyright databases at IPR unit
   - Applications for patent, trademark, and copyright (front-end to an "applications" database)
   - Searchable access to plant varieties database
   - Applications for plant varieties protection

In the process of bringing these "phase one" services online, the IPR database could be incorporated as a relational table within the Companies Registrar database, thereby eliminating the need for redundant collection of basic company data. In preparation for this first phase, a local consultant should be engaged to collect all of the current paper forms related to company registration and permitting and translate them into English where necessary.

A second stage of development could expand these offerings to include access to information on trade and customs, including:

- Access to customs and tariff data on classes of imports /exports (linkage to customs database)
- Access to remedies and anti-dumping databases maintained by the WTO unit
- Aggregate statistics from ASYCUDA or customs value database (to the extent these are of potential interest to the public)
- Notification, as per WTO requirements, of the current regime of tariffs and/or duties

A final third phase of development could focus on providing access, from the MIT Electronic Roadmap web portal to other resources, including:

- Licensing authorities
- Chambers of commerce
- Business associations
- Capital markets
- Credit bureau

This phase should also explore the feasibility of adding secure online payment mechanisms and digital signatures/certifications.

Appendix B includes a Gantt chart work plan for phased development of the portal, including proposed timelines and resource requirements. Some infrastructure modifications would be necessary at MIT, including an upgrade of their leased line connection to the Internet. The speed of their current leased line is 33.6 Kbps, and this would need to be upgraded to a minimum of 128Kbps. If planned reductions in ISP rates materialize (see Appendix C), the cost of a 128Kbps leased line will probably be on the order of JD 10,000 annually plus any up front setup fees.

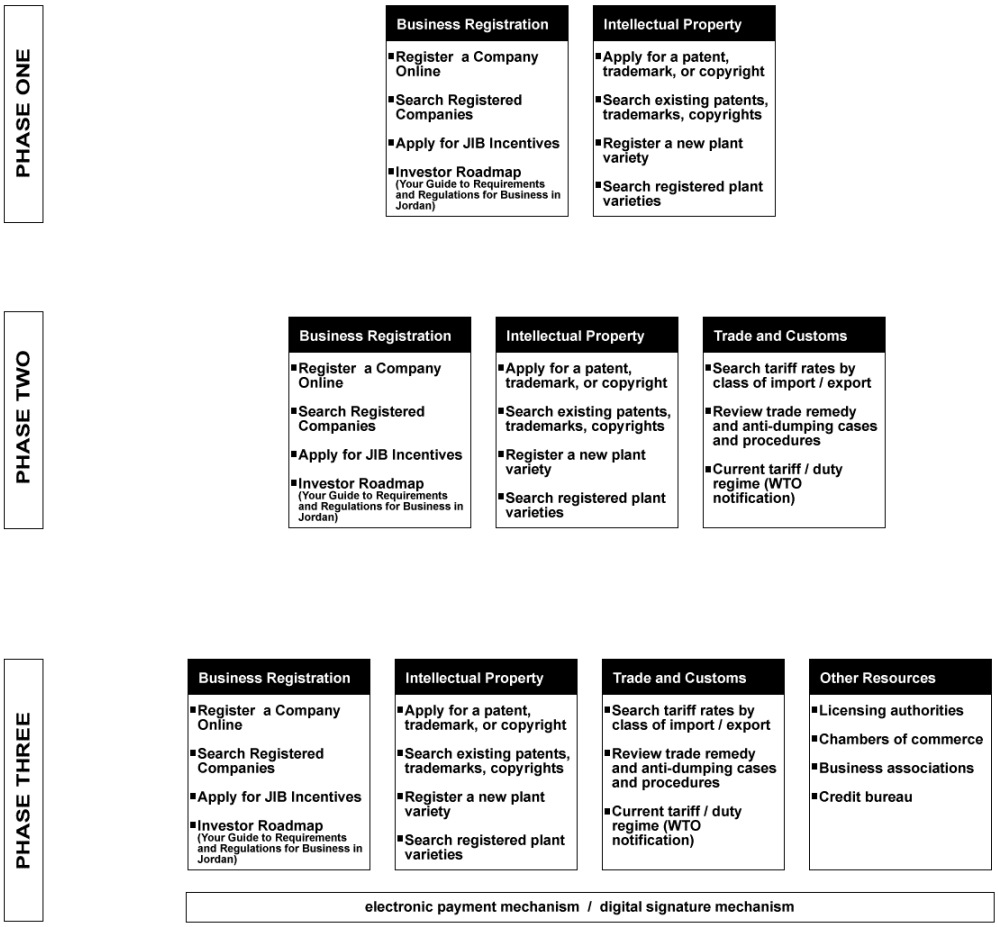
2.1.1 Key Advantages of an MIT "Electronic Business and Trade Roadmap" Web Portal

2.1.1a Single Point of Entry

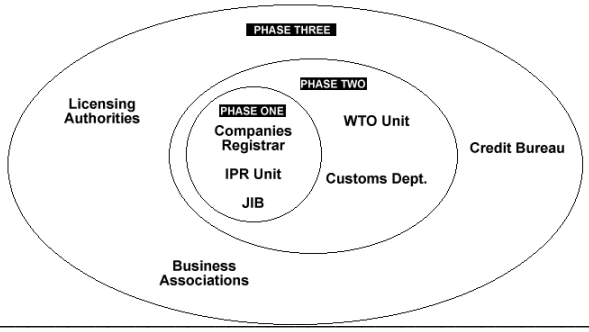
The most important advantage of the proposed portal would be the provision of a single point of entry for investors and businesses to the relevant on-line services available from the Government of Jordan. Currently, a number of key databases have been interfaced to the web, but they are obscured within a variety of content presented on the general public web sites of various agencies and ministries. A foreign company interested in registering an operational presence in Jordan, for example, might have a difficult time finding the searchable database of registered companies on the MIT site without some prior knowledge of the division of responsibilities among agencies and Ministries in this sector. A portal serves also to "advertise" the availability of important services to investors or businesses that visit the site. An individual coming to register his/her

Figure 1: MIT Electronic Business and Trade Roadmap (MIT Web Portal)

1a. Phased Development of Content



1b. Phased Integration of Institutional Sources into the Portal



company, for example, can be made immediately aware of the availability of JIB information on tax or other incentives.

Other countries in the region, such as Egypt, have recognized the value of this kind of portal and are taking initial steps in this direction. Examples of similar trade and investment oriented "portal" sites include:

- www.austrade.gov.au (Australia's Export and Investment Facilitation Agency)
- www.tradeport.org (U.S. Department of Commerce and Los Angeles Area Chamber of Commerce)
- http://207.6.23.164 (Canada Virtual Customs Office / Small Business Customs Library)

2.1.1b Broader Availability of the Investor Roadmap

A condensed version of the Investor Roadmap can be represented on the web as a simple but interactive application. Visitors can provide information about their proposed business activities and receive a list of relevant permit requirements, administrative contacts, timeframes for processing, and result sets from other relevant databases (e.g., applicable customs duties for imported materials). This would help, on an electronic level, to de-mystify processes and timeframes for businesses and create a more predictable and transparent regulatory environment for investors. Care would need to be taken in the design of the application so that results are not presented to users as a "barrage" of permitting or licensing requirements.

2.1.1c Common Architecture for Data Access / Development of Technical Standards for E-Government Services

Although the proposed portal would present data from a variety of database, it can be designed in a way that helps to realize economies of scale (time, skill sets, and software) in web-database architecture and programming. This will enhance the sustainability of the portal from a HR perspective, as MIT will require a narrower skill set for maintaining and expanding the portal, and reduce programming costs over time. A portal running on Microsoft's Internet Information Server (IIS) platform, for example, can make use of the ASP/ADO (Active Server Pages / ActiveX Data Objects) programming interface and the open architecture of ODBC and OLE DB to connect to a variety of database types with a single programming language (either server-side VBScript or JavaScript). A secondary advantage to a common data access architecture is the ability to present result sets from government databases in a consistent visual style and with uniform data presentation conventions.

The process of arriving at standards for web-database access, data transmission, security, and reliability for the MIT Electronic Roadmap portal would provide an illustrative set of core standards for other agencies and ministries interested in bringing their services online. This is a topic which should be addressed in the context of the proposed inter-agency / inter-Ministerial workshop on online e-government services (see section 2.2 below).

2.1.2 Communications and Networking Issues Associated with Development of the Portal

2.1.2a Internet Backbone in Jordan

At present, there is no Internet backbone (high-speed communications line connecting Internet service providers) in Jordan. This complicates the process of hosting a web site in Jordan, because all traffic to that site from other Jordanian ISPs must first be directed through Europe and/or the

United States. The conventional solution is to host a web site in the United States, but where live or semi-live database connections are a prominent feature of the web site, physical distance between the databases or data servers (which must remain on government premises in Jordan) and the web server becomes a complicating factor from both development and administration perspectives. There have been recent indications in the Jordanian press, however, that a fiber or satellite backbone may be established in Jordan by the end of the year. King Abdullah himself has publicly announced his determination on this point. If the backbone is completed in a timely fashion, this would enable hosting of the site from Jordan with greatly improved performance.

2.1.2b Cost of High-Speed Leased Lines in Jordan

While construction of a backbone improves the performance of local hosting, it does not solve the need for shorter-distance high-speed connections between data servers and a web server (i.e., the portal web server would be hosted at some distance from some of its potential data sources such as JIB or Customs). While the cost of medium-speed leased lines to ISPs are expensive, it is possible to create very inexpensive E1 connections (up to 2.01 Mbps) over short distances of standard copper lines using SDSL[2] (AMIR IT Manager Abdelmejeed Shamlawi has implemented such a connection between AMIR offices, for example). This method could be used to create high-speed links between off-site data servers, such as those at the Customs Department, and the web server (although not to the Internet itself).

2.2 E-Government Online Services Workshop

AMIR should conduct a workshop in collaboration with INT@J, the Jordanian IT industry association, to focus inter-agency / inter-Ministerial discussion on the online provision of government services and associated opportunities to recognize efficiencies in data collection, paperwork, and process. The workshop should aim to identify "champions" among decision-makers for e-government efforts and specific opportunities for inter-agency collaboration to simplify government processes for business. In preparation for this workshop, information on best practices in e-government and brief case studies on both successful and unsuccessful online government services should be developed. Such a workshop should involve key decision-makers and technical representatives from the array of AMIR's institutional partners, including:

- Minister of Industry and Trade
- Companies Registrar, MIT
- Director Computer & Info Directorate, MIT
- Director of the Communication and Electronic Control Directorate, Customs Department
- Representatives of the WTO and IPR Units at MIT
- Technical and programmatic representatives from JIB
- Technical and programmatic representatives from ACC, ACI, and other BA's

[2] xDSL (Digital Subcriber Line) connections exploit greater data capacity over standard copper telephone lines by stripping data off the line before it reaches the public telephone switching system. This is because it is the public telephone voice switches that generally limit how much data can be sent over copper wires more than the capacity of the wire itself. SDSL (sometimes called HDSL-2) is a variant of the HDSL standard which can provide the capacity of an E1 line over a single pair of copper wires without digital repeaters. SDSL is an ANSI standard.

2.3 More Complete Survey of Government Databases Related to Business and Trade

The GOJ would benefit from a complete set of simple structural documentation of the variety of databases employed by Ministries and agencies involved in trade, investment, and industry (at a minimum those directly involved with the AMIR project). This cursory review has demonstrated that in some cases this documentation is not currently available even from the administering agency. This would be an essential resource for all e-government planning efforts in this sector. In the course of this consultancy a skeletal matrix of the databases, their size, functions, users, engine, operating system, and structure has been developed which could serve as the foundation of a more complete documentation effort (Appendix A).

2.4 Migration of the ACC Membership Database

AMIR should encourage ACC to migrate its membership database to an open database platform and explore coordination with the Companies Registrar database. Currently the ACC is using a legacy system (COBOL front-end to a UFOS database) that substantially inhibits their ability to share their membership information with other organizations. This system should be upgraded to an open database platform like SQL Server or Oracle 8, based on discussions with ACC about their key requirements (i.e., performance vs. security vs. scalability vs. cost, etc.) ACC has already been provided two NT servers by AMIR, one of which could be utilized as a testing server for ACC to test the performance and reliability of both database engines and the NT operating system. Mr. Abdelmajeed Shamlawi's assistance to ACC would probably be very useful for this. Migration to an open system might also eventually allow ACC to derive its membership data directly from the companies registrar database (membership in ACC is mandatory for registered retail and non-industrial service businesses), eliminating a step in the registration process for retail businesses.

Appendix A: Database Survey

1. Customs Department

1.A. ASYCUD

Overview: UNCTAD-developed customs administration client-server database application. Currently online at two customs locations. To be expanded to Aqaba and Zarka to make 4 locations. Interesting element is possible remote (dial-up) tie-in of brokers to the system. Uses the UN EDIFACT EDI standard for data communication.

Users: Customs officers, possibly remote brokers in the future

Purpose: Administrative, operational customs data

O/S: Unix, DOS, Windows (Linux)

Engine: Oracle or Informix

Structure: Relational

Web Interface: No

Contact: Eng. Loui Sabri
Customs Headquarters

1.B. Tariff Values Database

Overview: Web database for searching tariffs by reference number or product keyword. Result recordset does not function properly -- connection appears to time out before page 2 of the result set (HTML) can be written.

Users: Importers / exporters

Purpose: Provide reference point on percentage duty values

O/S: Server OS unknown, Web Server OS is Netscape Server

Engine: Oracle

Structure: Simple relational.

Web Interface: Yes

Contact: Eng. Loui Sabri
Customs Headquarters

2. Ministry of Industry and Trade

2.A. Companies Register

Overview: Database holding records of registered companies. Range of tables is expansive, including shareholders, board of directors, structure, correspondence data, monetary information, capital, operational status, etc. Ongoing development aims at additional financial analysis capability. Registration process recently streamlined, though not at electronic level. Current web interface needs refinement. Companies Registrar is interested in moving the actual registration forms and process to the web.

Users: Registrar employees / officials / public / investors.

Purpose: List of all official applications for businesses. Apparently a large proportion of accepted applications don't ever really start up as businesses. MIT wants to use it as a real tracking system as well.

O/S: Unix.

Engine: Oracle forms 3. Web Server O/S unknown.

Structure: Relational.

Web Interface: Yes. 33.6 leased line serves all traffic

Contact: Atif Z. Hamdan
Director, Computer & Info Directorate
MIT
tel. 5607642
mob. 592686
email. Ahamdan@mit.gov.jo

2.B. Economic Statistics Database

Overview: Domain aggregate statistics drawn from the companies register database. Web interface needs redesign. Parameter (query) screens not logically laid out.

Users: Registrar employees / officials / public / investors.

Purpose: Basis of monthly statistical overview provided to the Central Bank and others.

O/S: Unix. Riding on MIT network

Engine: Oracle. Web server O/S unknown.

Structure: Relational

Web

Interface: Yes. 33.6 leased line serves all traffic

Contact: Atif Z. Hamdan
Director, Computer & Info Directorate
MIT
tel. 5607642
mob. 592686
email. Ahamdan@mit.gov.jo

2.C. Patent / Trademark Database

Overview: Web database for searching trademarks, patents by keyword. Web interface minimally functional. Currency of data questionable.

Users: Public, business community

Purpose: Reference point for trademark availability

O/S: Unix.

Engine: Oracle. Not sure what the web interface is built on.

Structure: Unknown

Web Interface: Yes. 33.6 leased line serves all traffic.

Contact: Atif Z. Hamdan
Director, Computer & Info Directorate
MIT
tel. 5607642
mob. 592686
email. Ahamdan@mit.gov.jo

3. Jordan Investment Board

3.A Investor Information Database

Overview: In development. To be rolled out by June 15, 2000. Investors / businesses can post available resources, including land, buildings, services, CVs, leads, or search what has been posted.

Users: Investors / business / public

Purpose: Public information / encourage investors

O/S: NT/Internet Information Server

Engine: MS SQL Server

Structure: Relational

Web Interface: Yes.

Contact: Tanna Price (tanna@jib.com.jo)
Sam Morris (smorris@jib.com.jo) - Consultant

3.B Investor Tracking System

Overview: AMIR has procured development of an MSAccess / SQL client-server DB to serve as Investor Tracking System and Management Information System. To be rolled out in stages by June 15

Users: JIB staff

Purpose: Customer relationship management for JIB in near term. Track JIB staff responsibilities, material resources brought to the table by investors, success rate. Multi-purpose, "data-mining" resource over the long term.

O / S: NT

Engine: MS SQL Server

Structure: Relational

Web Interface: No.

Contact: Tanna Price (tanna@jib.com.jo)
Sam Morris (smorris@jib.com.jo) – Consultant

3.C JIB Industrial Directory

Overview: Still in conceptual stages.

Users: Investors / business / public

Purpose: Provide industry-level information to targeted / interested investors.

O / S: NT

Engine: MS SQL Server

Structure: Unknown

Web Interface: No.

Contact: Tanna Price (tanna@jib.com.jo)
Sam Morris (smorris@jib.com.jo) – Consultant

4. Business Associations

4.A Amman Chamber of Commerce Membership Database

Overview: Legacy system (Cobol front end and UFOS engine) which needs to be migrated. Currently, it is very difficult for them to export / share information with users on other platforms, because it is a 7-bit architecture.

Users: ACC staff

Purpose: Track membership and renewals

O/S: Unix

Engine: UFOS

Structure: Relational

Web Interface: No.

Contact:

4.B Business Association Membership Management System

Overview: AMIR has contracted development of a desktop database application for use by business associations in managing their membership data. At the time of this consultancy, the product's specifications were being finalized.

Users: BA staffs

Purpose: Track membership, renewals, provide info on membership to general public

O/S: Win 95/98/NT

Engine: MS Access

Structure: Relational

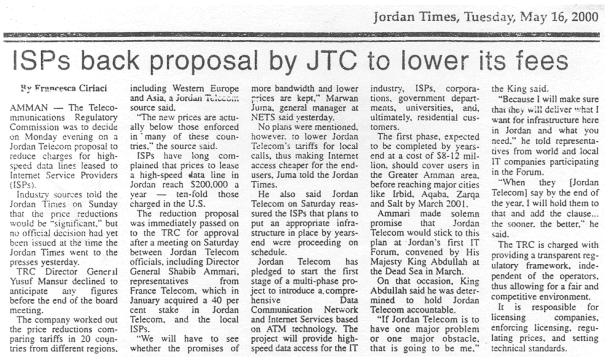
Web Interface: Planned

Contact: Karen Roland, AMIR

Appendix B: Draft Workplan for Proposed Activities

Appendix C: Jordan Times Articles Citing Plans to Improve Internet Infrastructure (Fiber Backbone) – May 16 – 20, 2000

Jordan Times, Tuesday, May 16, 2000



Jordan Times, Tuesday, May 16, 2000

ISPs back proposal by JTC to lower its fees

By Francesca Ciriaci

AMMAN — The Telecommunications Regulatory Commission was to decide on Monday evening on a Jordan Telecom proposal to reduce charges for high-speed data lines leased to Internet Service Providers (ISPs).

Industry sources told the Jordan Times on Sunday that the price reductions would be "significant," but no official decision had yet been issued at the time the Jordan Times went to the presses yesterday.

TRC Director General Yusuf Mansur declined to anticipate any figures before the end of the board meeting.

The company worked out the price reductions comparing tariffs in 20 countries from different regions, including Western Europe and Asia, a Jordan Telecom source said.

"The new prices are actually below those enforced in many of these countries," the source said.

ISPs have long complained that prices to lease a high-speed data line in Jordan reach $200,000 a year — ten-fold those charged in the U.S.

The reduction proposal was immediately passed on to the TRC for approval after a meeting on Saturday between Jordan Telecom officials, including Director General Shabib Ammari, representatives from France Telecom, which in January acquired a 40 per cent stake in Jordan Telecom, and the local ISPs.

"We will have to see whether the promises of more bandwidth and lower prices are kept," Marwan Juma, general manager at NETS said yesterday.

No plans were mentioned, however, to lower Jordan Telecom's tariffs for local calls, thus making Internet access cheaper for the end-users, Juma told the Jordan Times.

He also said Jordan Telecom on Saturday reassured the ISPs that plans to put an appropriate infrastructure in place by years-end were proceeding on schedule.

Jordan Telecom has pledged to start the first stage of a multi-phase project to introduce a comprehensive Data Communication Network and Internet Services based on ATM technology. The project will provide high-speed data access for the IT industry, ISPs, corporations, government departments, universities, and, ultimately, residential customers.

The first phase, expected to be completed by years-end at a cost of $8-12 million, should cover users in the Greater Amman area, before reaching major cities like Irbid, Aqaba, Zarqa and Salt by March 2001.

Ammari made solemn promise that Jordan Telecom would stick to this plan at Jordan's first IT Forum, convened by His Majesty King Abdullah at the Dead Sea in March.

On that occasion, King Abdullah said he was determined to hold Jordan Telecom accountable.

"If Jordan Telecom is to have one major problem or one major obstacle, that is going to be me," the King said.

"Because I will make sure that they will deliver what I want for infrastructure here in Jordan and what you need," he told representatives from world and local IT companies participating in the Forum.

"When they [Jordan Telecom] say by the end of the year, I will hold them to that and add the clause... the sooner, the better," he said.

The TRC is charged with providing a transparent regulatory framework, independent of the operators, thus allowing for a fair and competitive environment.

It is responsible for licensing companies, enforcing licensing, regulating prices, and setting technical standards.

Jordan Times, Friday-Saturday, May 19-20, 2000

Jordan Telecom plans to answer call for better IT infrastructure

AMMAN (J.T.) — Jordan Telecom has reiterated its commitment to provide more efficient and cost-effective services that could boost the long-sought development of the Kingdom's information technology (IT) sector.

In fact, the newly-privatised company plans to become an Internet Service Provider (ISP) by early next year, company Director General Shabib Ammari and CEO Pierre Mattei said at a press conference on Wednesday.

Other priorities identified by the pair included the development of a voice network, the establishment of a digital transmission backbone, and the introduction of free phone services.

Speaking 100 days after his arrival at the helm of a new management team from France Telecom, which acquired a 40 per cent stake in Jordan Telecom in late January, Mattei reassured local and foreign investors that a digital data transmission network covering the Greater Amman area would be completed by December, and extended to other major cities by next March.

As for the voice network, he said this technology would be improved by restructuring swjtches and transmission links in the southern regions of Karak, Tafileh and Aqaba.

The local loop would also be improved, Mattei told the press conference, and rural areas throughout the Kingdom will be progressively covered.

He further said the company would seek customer satisfaction by improving its "after-sale" services and billing procedures, as well as by introducing 800 free numbers as early as this summer.

The cornerstone of the company's restructuring plan is a tariff reduction offer, currently being examined by the Telecommu-nications Regulatory Commission.

According to Mattei, Jordan Telecom will "significantly" decrease the prices for high-speed lines leased to local ISPs — currently 10-fold those charged in the U.S. — and will also lower the charges for subscribers dialling up the ISPs from outside Amman.

Human resources will be a key issue in Jordan Telecom's future development, Mattei added, "and a transparent and fair management will allow the achievement of these objectives and the personal development of the employees."